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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,222

10/04/2006

Leonhard Fuchs

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12/12/2008

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EXAMINER

BARRY, CHESTER T

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

12/12/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,222	<b>Applicant(s)</b> FUCHS ET AL.	
	<b>Examiner</b> CHESTER T. BARRY	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

Claims 1, 3, 4, 10, 11 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 6966983 to McWhirter.

USP 6966983 to McWhirter describes (Fig., 2, (col 5 line 37+) ) a process for the stabilization and disinfection of sludge wherein raw sludge having a dry matter content of at least 3% by weight is fed quasi-continuously into a first stage, where it remains for an average retention time of 5 – 10 days under aerobic-thermophilic conditions to obtain a partially stabilized sludge; and said partially stabilized sludge is fed into a second stage in which disinfection of the partially stabilized sludge is effected at temperatures of 55 - 65°C (col 5 line 37+) wherein prior to discharging, there is no charging until said partially stabilized sludge has been disinfected.<sup>1</sup> Per claim 10, McWhirter teaches that the aerobically stabilized and disinfected sludge is subsequently further treated physically by being cooled in tank 26 and applied to land. The skilled artisan would have understood that such land-applied sludge is chemically and/or biologically further treated by microorganisms in the soil. Per claim 11, the vent gas 27 is further treated by scrubbing.

Claim 8 is rejected under 35 U.S.C. 103(a) as being obvious over USP 6966983 to McWhirter in view of USP 4846965. McWhirter does not appear to describe controlling the amount of oxygen supplied in the first or second stage depending on parameters selected from the group of: charged amount of raw sludge; redox potential in

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<sup>1</sup> McWhirter '983 states (col 5 line 37+): "Feeding is often intermittent, with removal of digested solids from the second tank, transfer of digesting solids from the first to the second tank, and addition of feed solids to the first tank. This promotes temperature elevation and minimizes short-circuiting of feed solids to the stabilized solids, thereby enhancing pathogen destruction."

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the sludge; oxygen content in the sludge; oxygen content in the exhaust gas; or CO<sub>2</sub> content in the exhaust gas. USP 4846965 describes controlling the amount of oxygen supplied in an aerated wastewater treatment process depending on dissolved oxygen content in the sludge. Accordingly, it would have been obvious to have controlled aeration rate of the McWhirter process based on dissolved oxygen content in the sludge, as suggested by USP 4846965.

Claim 9 is rejected under 35 U.S.C. 103(a) as being obvious over USP 6966983 to McWhirter in view of USP 6660164 to Stover. McWhirter does not appear to describe supplemental heating of the aerobic thermophilic reactors. Stover teaches that a supplemental heating system 128 maybe provided to heat the influent flow or recycle line 18 in the event the heating requirements of the aerobic thermophilic reactor 10 cannot be satisfied by the fuel value content or the temperature of the raw waste to be treated. It would have been obvious to have provided McWhirter's reactors with such a supplemental heating system to allow the reactor bulk liquid temperature to be maintained within the desired temperature range should the fuel value content or the temperature of the raw waste to be treated is insufficient to maintain disinfecting temperatures.

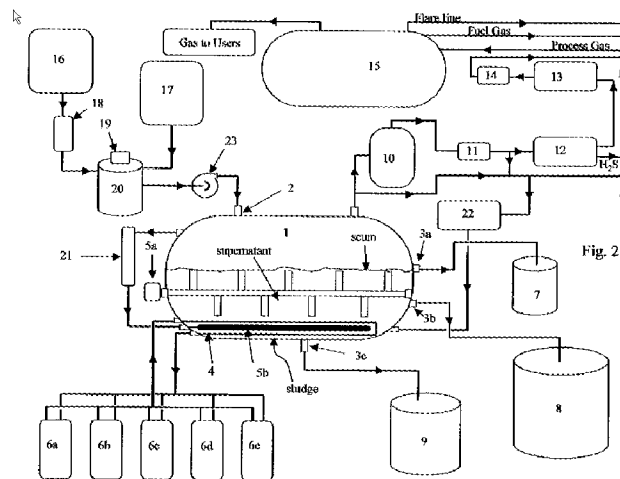
Claims 5-7 are rejected under 35 U.S.C. 103(a) as being obvious over USP 6966983 to McWhirter. Insofar as the art recognizes that stabilization of sludge is known to depend in part on the duration of a thermophilic digestion operation, it would have been obvious to have optimized the duration of each stage to ensure adequate killing of pathogenic organisms while as the same time maximizing throughput of sludge

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through the McWhirter system. Accordingly, it would have been obvious to have optimized the time between two chargings of the first stage.

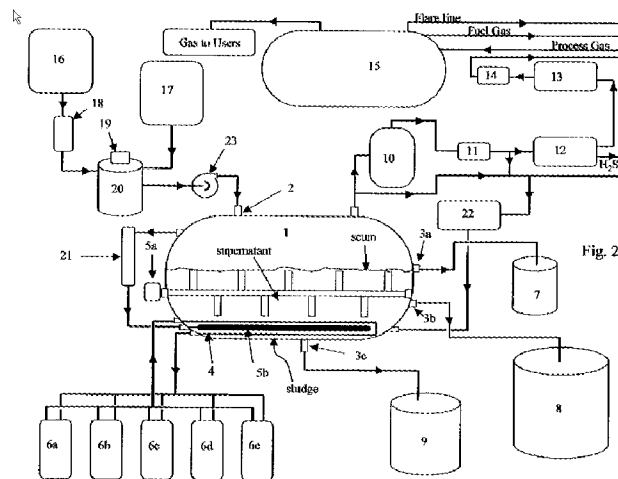
Applicants' claim 12 is directed to an apparatus comprising an upstream tank, a downstream tank, and a conveying means selected from the group consisting of a valve, a pump, or a combination of a pump with two valves, or structural equivalents thereof, therebetween. The claim 12 recitation "for the aerobic-thermophilic stabilization and disinfection of sludge" is merely a statement of intended use of the apparatus so it does not structurally limit the scope of the claimed apparatus. The claim 12 recitation "for the continuous or quasi-continuous charging of raw sludge" is also merely a statement of intended use of the claim-recited "raw sludge tank" so it does not structurally limit the scope of the raw sludge tank. The claim 12 recitation "for disinfecting the partially stabilized sewage sludge" is also merely a statement of intended use of the claim-recited "disinfecting tank" so it does not structurally limit the scope of the disinfecting tank. The "conveying means . . . for the batchwise conveying of sludge into the disinfection tank" is recited in so-called "means-plus-function" claim drafting format sanctioned by 35 U.S.C. Sec. 112, 6<sup>th</sup> paragraph. It reads on a process flow line, e.g., a pipeline, comprising "pumps and valves" ([0023]), "a valve" ([0037]), a valve and a pump ([0037]), or a valve, pump, and valve arranged in series ([0037]).

Claims 12, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 20020079266 to Ainsworth. USP 20020079266 to Ainsworth describes a tank 20 fluidly



connected via pump 23 to tank 1. Applicants' claim-recited "raw sludge tank" reads on Ainsworth's tank 20 because 1) tank 20 appears capable of containing raw sludge, and 2) applicants' device claims do not require that the "raw sludge tank" contain raw sludge. Applicants' "disinfection tank" reads on Ainsworth's tank 1 because 1) tank 1 appears capable of disinfecting partially stabilized sewage sludge, e.g., by heat, addition of a disinfectant, such as chlorine, or by at least one other known manner of disinfection, and 2) applicants' device claims do not require that the "disinfection tank" contain partially stabilized sewage sludge. Applicants' conveying means reads on Ainsworth's pump 23. Per claim 15, the tank 1 has a gas exhaust device and a heater.

Claims 12, 13, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 20020079266 to Ainsworth. USP 20020079266 to Ainsworth describes a tank 20 fluidly

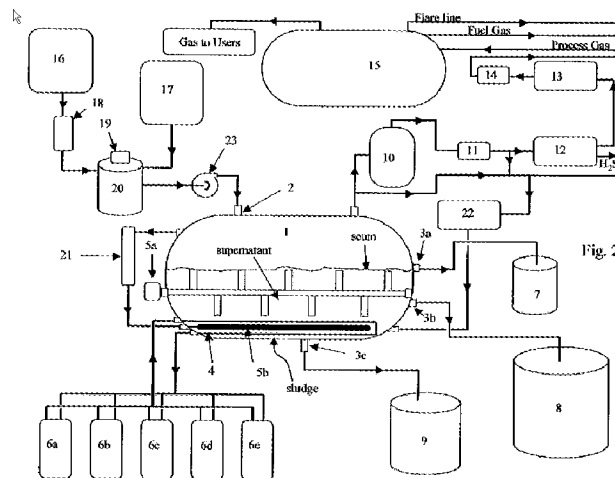


connected via pump 23 to tank 1. Tank 1 is also fluidly connected to downstream tank 9. Applicants' claim-recited "raw sludge tank" reads on Ainsworth's tank 20 because 1) tank 20 appears capable of containing raw sludge, and 2) applicants' device claims do not require that the "raw sludge tank" contain raw sludge. Applicants' "disinfection tank" reads on Ainsworth's tank 9 because 1) tank 9 appears capable of disinfecting partially stabilized sewage sludge, e.g., by heat, addition of a disinfectant, such as chlorine, or by at least one other known manner of disinfection, and 2) applicants' device claims do not require that the "disinfection tank" contain partially stabilized sewage sludge, although if claim 13 so required, Ainsworth's disclosure of sludge tank 9 would meet that limitation. Applicants' "intermediate tank" reads on Ainsworth's tank 1 because 1) tank 1 is fluidly between tank 20 and tank 9. Applicants' first conveying means reads on Ainsworth's pump 23 insofar as it is located between tank 20 and tank 1 and it appears capable of continuous operation. Ainsworth does not expressly describe a valve in the pipeline between tank 1 and tank 9, but the skilled artisan would have understood that a valve is necessarily present at that location to prevent flow of tank 1

contents into tank 9 before the reactor contents had separated into a settled sludge, scum, or intermediate layer, or until such time as the reaction in tank 1 was complete.

See Ainsworth [0079]. Per claim 15, tank 20 has an agitation device. Per claim 15, the tank 1 has a gas exhaust device and a heater.

Claims 12, 14 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 20020079266 to Ainsworth. USP 20020079266 to Ainsworth describes a tank 20 fluidly



connected via pump 23 to tank 1. Tank 1 is also fluidly connected to downstream tank 8 and tank 9. Applicants' claim-recited "raw sludge tank" reads on Ainsworth's tank 20 because 1) tank 20 appears capable of containing raw sludge, and 2) applicants' device claims do not require that the "raw sludge tank" contain raw sludge. Applicants' first "disinfection tank" reads on Ainsworth's tank 8 because 1) tank 8 appears capable of disinfecting partially stabilized sewage sludge, e.g., by heat, addition of a disinfectant, such as chlorine, or by at least one other known manner of disinfection, and 2) applicants' device claims do not require that the "disinfection tank" contain partially stabilized sewage sludge. Applicants' second "disinfection tank" reads on Ainsworth's



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tank 9 because 1) tank 9 appears capable of disinfecting partially stabilized sewage sludge, e.g., by heat, addition of a disinfectant, such as chlorine, or by at least one other known manner of disinfection, and 2) applicants' device claims do not require that the "disinfection tank" contain partially stabilized sewage sludge, although if claim 14 so required, Ainsworth's disclosure of sludge tank 9 would meet that limitation. Applicants' first conveying means reads on Ainsworth's pump 23 insofar as it is located between tank 20 and tank 1 and it appears capable of continuous operation. Ainsworth does not expressly describe a valve in either the pipeline between tank 1 and tank 8, or between tank 1 and tank 9, but the skilled artisan would have understood that a valve is necessarily present at each of these locations to prevent flow of the tank 1 contents to flow into either downstream tank before the tank 1 contents had separated into a settled sludge and intermediate layer, or until such time as the reaction in tank 1 was complete. See Ainsworth [0079].

Claims 12 – 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Given that applicants' device claims do not require the presence of raw sludge in the "raw sludge tank," it is unclear how a "raw sludge tank" is structurally distinguishable from a tank *per se*. That is, it is unclear what distinguishing feature, if any, differentiates a "raw sludge tank" from a "tank." Similarly, given that applicants' device claims do not require the presence of a disinfectant in the "disinfection tank," it is unclear how a "disinfection tank" is structurally distinguishable from a tank *per se*. That is, it is unclear what distinguishing feature, if any, differentiates

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a “disinfection tank” from a “tank.” Per claim 14, it is unclear whether the “at least two disinfection tanks” recited there are in addition to the disinfection tank recited in claim 12, or if the device of claim 14 requires no fewer than 2 disinfection tanks.

/Chester T. Barry/

Primary Examiner, Art Unit 1797

571-272-1152